

Inequalities Questions

- (E) 9** Give your answers in set notation.
- a** Solve the inequality $3x - 8 > x + 13$. (2 marks)
- b** Solve the inequality $x^2 - 5x - 14 > 0$. (4 marks)
- (E) 11 a** Use algebra to solve $(x - 1)(x + 2) = 18$. (2 marks)
- b** Hence, or otherwise, find the set of values of x for which $(x - 1)(x + 2) > 18$.
Give your answer in set notation. (2 marks)
- (E) 16 a** Sketch the graphs of $y = f(x) = x^2 + 2x - 15$ and $g(x) = 6 - 2x$ on the same axes. (4 marks)
- b** Find the coordinates of any points of intersection. (3 marks)
- c** Write down the set of values of x for which $f(x) > g(x)$. (1 mark)
- (E) 18** On a coordinate grid, shade the region that satisfies the inequalities:
 $y > x^2 + 4x - 12$ and $y < 4 - x^2$. (5 marks)

Challenge

- 1** Find the possible values of k for the quadratic equation $2kx^2 + 5kx + 5k - 3 = 0$ to have real roots.
- 2** A straight line has equation $y = 2x - k$ and a parabola has equation $y = 3x^2 + 2kx + 5$ where k is a constant. Find the range of values of k for which the line and the parabola do not intersect.